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Office of River Protection 2015 Year in Review

KEY ACCOMPLISHMENTS

- Completed 15th single-shell tank retrieval.
- Increased double-shell tank storage space through use of the site's evaporator.
- Implemented path forward to begin tank waste treatment at the Waste Treatment and Immobilization Plant (WTP) as early as 2022.
- Resumed production engineering, continued construction on the WTP High-Level Waste Facility.
- Implemented plan to further improve worker safety at Hanford's tank farms.

Hanford, Washington – In 2015, the U.S. Department of Energy (DOE) Office of River Protection (ORP) made continued progress in addressing the 56 million gallons of nuclear waste stored in 177 underground tanks at Hanford.

"This year was key in positioning ORP for our future operational success. We have now built a strong foundation, capable of supporting us into direct feed of low-activity waste as soon as practicable, and as early as 2022," said ORP Manager Kevin Smith.

Workers with Hanford tank farms contractor Washington River Protection Solutions (WRPS) continued to retrieve waste from the site's single-shell tanks for storage in double-shell tanks,

Employees look at a melter at the Waste Treatment and Immobilization Plant's Low Activity Waste Facility.

completing the 15th single-shell tank retrieval to date. This brings Hanford one step closer to completing single-shell tank retrievals at the C Tank Farm. WRPS is applying the lessons learned from the C Tank Farm work to the development and installation of infrastructure to prepare for retrieval of the next tank farms – A/AX. By applying lessons learned, ORP is maximizing opportunities to create a safer environment for tank farm workers, reducing risks by completing retrievals quickly, and making the best use of taxpayer dollars.


The evaporator at tank T-111.

As part of efforts to effectively manage space in Hanford's storage tanks, a portable exhauster was installed on Tank T-111 this summer and has removed about 3,000 gallons of water from the tank. Operation of the 242-A Evaporator continues, creating nearly 2 million gallons of double-shell tank waste storage space this year.

To improve safety at the tank farms, ORP this year implemented the recommendations of experts of the Tank Vapor Assessment Team, including the hiring of over 100 industrial hygiene technicians and identification of new technologies for vapor monitoring and improved job planning. WRPS received two safety awards, including one for developing a tool that reduced worker exposure during surveys of radioactive equipment used to retrieve waste.

WTP Direct-Feed LAW Initiative Moving Forward

ORP and contractor Bechtel National Incorporated also continued to make progress with the design and construction of the Hanford Waste Treatment and Immobilization Plant (WTP), which will process the waste taken from Hanford's tanks for eventual final disposal. Approvals were granted and contracts modified to start the design of facilities and

An employee tags non-radioactive liquid waste disposal system equipment for testing and initial operation.

structures to support low-activity waste processing prior to completion of the overall WTP. Detailed design of the Low-Activity Waste Pretreatment System is moving forward. The conceptual design of a tank waste characterization and staging facility is also under way. This will be a critical component in the characterization and potential blending and conditioning of high-level waste streams, which will be fed from the tank farms to the WTP High-Level Waste Facility for vitrification.

At the WTP Pretreatment Facility, technical issue resolution continued with half-scale testing of pulse-jet mixing completed, and a purchase order was awarded to build the full-scale test vessel. Progress continues on other facilities not impacted by remaining technical issues. Fire- and heat- resistant brick now line the two 300-ton melters at the WTP Low-Activity Waste Facility. These melters will heat liquid radioactive waste to create a molten slurry that will solidify into glass. All major systems for three support facilities are now ready for operational testing. Civil engineering and construction continued at the High-Level Waste Facility, which reached the fifth of six elevations.

ORP's mission is to safeguard the nuclear waste stored in Hanford's 177 underground tanks and to manage the waste safely and responsibly until it can be treated in the Waste Treatment and Immobilization Plant for final disposition.

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